

DATE: September 11, 2000

FILE REF:

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SUBJECT: Wisconsin DNR Hazardous Air Pollutant Screening Levels

INTRODUCTION

The threshold emission rates listed in Tables 1, 2, 4, and 5 in Section NR 445.04, Wisconsin Administrative Code are established to ensure that individual sources emitting below the threshold, would not on their own exceed the ambient air concentrations for hazardous air pollutants set in the chapter.

As part of the revisions to Chapter NR 445 it has been proposed to include a process that would allow facilities to demonstrate compliance with the acceptable ambient air concentrations (AAC) without going through the air permitting process. This memo details the procedures to be followed to demonstrate compliance with these regulations using the new screening process.

SCREENING LEVELS

Level 1

The facility may demonstrate compliance with the ambient air concentrations for pollutants listed in Tables 1, 2, 4, and 5 by showing that the maximum proposed emissions from the facility are less than the threshold emission rate for that particular pollutant. If a facility has multiple stacks, emissions from all stacks for a given pollutant are compared to the threshold for the respective stack within Chapter NR 445. If the rates are below the threshold for all stacks, no further action is required by the facility.

Level 2

If the facility fails to demonstrate compliance using Level 1, then source specific dispersion modeling may be performed using the USEPA model SCREEN3. This model uses the same algorithms as the refined model ISCST3, but contains 54 standard meteorological conditions. Only one stack may be modeled at a time, and only the distance to the receptor is considered. SCREEN3 computes one-hour concentrations, so to convert to 24-hour concentrations the result from the model is multiplied by 0.4, and to convert to annual concentrations the model result is multiplied by 0.1.

Single Point of Emissions: If the facility has only one stack emitting a particular pollutant, then that stack is modeled with its proposed allowable emission rate, the actual stack height, stack diameter, exit gas velocity, exit gas temperature, building dimensions (height and width), and minimum (property line) and maximum (property line plus 5000 meters) receptor distances. If the modeled concentrations are less than the AAC for the pollutant, no further action is required.

Multiple Points of Emissions: If the facility has several stacks emitting a particular pollutant, then all stacks are modeled individually and then added together to determine the aggregate ambient air concentration at the point of greatest impact. If the modeled concentrations are less than the AAC for the pollutant, no further action would be required.

Level 2A: Each stack is modeled with its proposed allowable emission rate, the actual stack height, stack diameter, exit gas velocity, exit gas temperature, building dimensions (height and width), and minimum (property line) and maximum (property line plus 5000 meters) receptor distances. These concentrations are then totaled to determine the maximum facility impact, using scaling factors where appropriate. If the composite ambient concentration of the modeled pollutant is less than the AAC, then the facility will be deemed to have demonstrated compliance with the threshold emission rates for the particular pollutant.

Level 2B: If the result from Level 2A is above the individual acceptable air concentration, then the following procedure may be performed to demonstrate compliance. Each stack is modeled with its proposed allowable emission rate, the actual stack height, stack diameter, exit gas velocity, exit gas temperature, building dimensions (height and width), and minimum (property line) and maximum (property line plus 5000 meters) receptor distances. The stack with the highest individual impact at or beyond the property line is selected. The location where that highest individual impact occurs is determined and all other stacks emitting the same pollutant are modeled to determine their impact at this receptor. These concentrations are then totaled to determine the maximum facility impact. If the composite ambient concentration of the modeled pollutant is less than 90% of the AAC, then the facility will be deemed to have demonstrated compliance with the threshold emission rates for the particular pollutant.

Level 3

If the facility fails to demonstrate compliance using Level 1 or Level 2, then source specific refined dispersion modeling may be performed using a recommended USEPA dispersion model and considering all sources of emissions at a given facility for a particular pollutant. In cases where the results from the Level 2B modeling falls between 90% and 100% of the AAC, the facility should contact the DNR prior to conducting the more refined modeling required for demonstrating compliance at Level 3. The facility and the DNR will confer to determine if refined modeling is necessary.

These procedures are followed for all pollutants.

ADMINISTRATIVE PROCEDURES

A facility that wishes to use the screening process can follow the procedures outlined above or request the model and/or operational instructions from the Bureau of Air Management. The facility would then enter their specific model parameters (stack height, stack diameter, exit gas velocity and temperature, building dimensions, minimum (property line) and maximum (property line plus 5000 meters) receptor distances, and proposed allowable emission rate) and execute the model.

Upon completion of the modeling, if ambient air concentrations satisfy the conditions listed above, the facility will maintain on site and/or submit to the DNR:

- A list of all site specific parameters that were used
- A scaled plot plan with all stacks modeled labeled, all building heights provided, and any fence and property lines indicated
- A certification to the accuracy of the input parameters and the results.